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## EDITOR'S NOTE

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## Introduction: trends in land protection policies

- 1 If one compares protection policies for the "Big Three" of large areas (i.e., national parks, nature parks and biosphere reserves), there is no doubt that biosphere reserves are required to match the most complex set of quality requirements. Not only do they have to be exemplary as regards habitat diversity; they must also demonstrate conservation and development functions. Since the launch of the Seville strategy in 1995 (see Austrian Academy of Sciences, ÖAW 2005), the definition of biosphere reserves has rested on the explicit integration of instruments of nature conservation and regional development. Representing the principle of sustainable land use in transition zones, biosphere reserves are explicitly experimental by nature. It is hoped that their impact will reach well beyond their immediate surroundings. In this sense, the biosphere reserve concept constitutes an expanded interface between the other two categories of large protected areas intended to be more aggressive instruments of either nature conservation (i.e., IUCN category II national parks), or regional development (i.e., IUCN category V nature parks; see Hammer, Mose, Siegrist, Weixlbaumer 2007).
- 2 The UNESCO launched the concept of biosphere reserves in 1970. They were originally and primarily intended as landscapes focused on conservation and monitoring. However, in a symptomatic paradigm shift in land conservation, they evolved into examples of multifunctional landscape management. In the course of nearly four decades, this

evolution has been accompanied by two distinct paradigmatic approaches, i.e. static conservation (segregational approach), and dynamic innovation (integrational approach; see Weixlbaumer 2005).

- 3 The static-conservational approach as reflected in pre-Seville stages of biosphere reserve policies is characterised as follows:
  - the dichotomy of protected versus "despoiled" areas, i.e., a "bell-jar" or reservation policy, clearly distinguishes between areas of nature conservation and economic activity; contact between protected and unprotected areas is minimal;
  - protection is sectoral; the two major instruments of classical nature protection are species and area conservation; the underlying ideology is mechanistic;
  - a rudimentary, often merely regional management structure usually serves to implement basic principles of species and area conservation; while norms do exist, management does not play a central role; nature protection occurs in an idealising context, primarily to preserve individual protected species and features;
  - norms and protected areas are defined and established in a top-down process; prohibitions are used to implement this "authoritarian" form of nature protection;
  - public acceptance is not an issue in this strongly regulative-normative approach.
- 4 In contrast, the dynamic-innovative approach (integrational approach) implemented in large protected areas is characterised as follows:
  - the principle of nature conservation transcends space and time in an attempt to overcome the dichotomy of protected versus "despoiled" areas;
  - insofar as protection focuses on processes rather than actual areas, the principle of sustainable development becomes exemplary; its impact reaches areas and processes beyond the actual protected areas; the underlying ideology is transactional;
  - as a rule, fully fledged and increasingly professional conservation management structures are established to implement integrational protection and landscape development policies;
  - nature conservation is a societal task to be achieved with a mix of policies (interplay of top-down and bottom-up approaches); policies are therefore not so much regulative/normative, than based on a high degree of voluntary participation in the sense of "nature conservation on demand";
  - popular acceptance is of primordial significance and is usually achieved through stakeholder participation.
- 5 Unlike the static-conservational approach, the dynamic-innovative approach is based not so much on an "en-vironmental", but rather on a "co-vironmental" ideology (Mitwelt, in the sense of Meyer-Abich 1990). Moderate, non-radical anthropocentrism takes precedence over a non-anthropocentric view. We can only protect and sustainably develop "Nature" if we perceive ourselves as being part of it, adopting an insider perspective of protected areas. Hence, it would be wrong to reject this approach to nature conservation for being "scientificist" (Vernaturwissenschaftlichung, see Plachter 1991). Rather, integrational principles can be implemented through inter and transdisciplinary research and management. A higher regard for and stronger integration of social sciences and the humanities has explicitly been called for (see Erdmann 2000). The result is a notion of land conservation that – in Europe at least – tends to aim at explicitly innovative sustainable development. A key instrument in this approach is the establishment of biosphere reserves according to the Seville strategy.

- 6 In actual fact, the polarisation outlined here has softened somewhat. Nevertheless, and in very broad terms, conventional land conservation policy can be said to be based on an ideology that pits protected against "despoiled" land. Especially in Europe, new insights have quite firmly established the dynamic-innovative approach in the nature-conservation discourse. The chief challenge now consists in integrating the most diverse (utilisation) interests. In this process, large protected tracts of land literally function as "experimental areas" or "laboratories" where the attempt is being made to reconcile interests of protection, conservation and use in a socially, economically and "co-environmentally" sustainable fashion. There is no doubt that, over the past few decades, the principles, properties and underlying philosophies of the dynamic-innovative approach have contributed to the boom in nature and regional parks, but especially in biosphere parks, as well as numerous non-IUCN category II national parks in Europe.
- 7 This is the context of the research project, "Future Development Strategies for the Großes Walsertal Biosphere Park. A regional economic and perceptual analysis". Supported by the Austrian Academy of Sciences in the context of its MAB programme, it examined how this biosphere park was perceived by local inhabitants and outside experts five years after its creation [in 2000]; and whether it was possible to identify early economic effects of specific innovative regional development projects.

## Großes Walsertal Biosphere Park: stakeholder perceptions

- 8 The study area is located in Vorarlberg in the westernmost part of Austria. A total of some 3,500 inhabitants live in six communities (Thüringerberg, Blons, Sankt Gerold, Sonntag, Fontanella, Raggal). In simple terms, owing to its remoteness and comparatively slow development, the Großes Walsertal is a peripheral, structurally weak rural area.
- 9 This is the late 1990s context in which local authorities and stakeholders sought new development perspectives for their valley. A visit to the German Biosphere Reserve of Rhön strengthened their conviction that the biosphere reserve concept might be able to provide their area with a unique selling proposition based on the valorisation of its endogenous potentials. The idea was to promote sustainable small-scale supply chains to achieve "gentle" regional development that would contrast positively with neighbouring regions that were primarily developing their tourist sectors. This is how, in 2000, the Großes Walsertal became the first Austrian biosphere park according to the principles of the Seville strategy (see Austrian Academy of Sciences, ÖAW 2005). In other words, the impulse to establish a biosphere park originated from within the region itself.
- 10 A large part of the local authorities and stakeholders were basically supportive of the idea and the local population were actively involved in the process of drawing up guidelines and conceiving regional projects intended to pave the way for the Großes Walsertal as an "exemplary region for sustainable development".
- 11 Does this mean that the fundamental principles of biosphere parks are now firmly established in the stakeholders' minds, and that implementing the biosphere park and related projects enjoys wide regional acceptance?

## Analysis of self-perception and outside view

- 12 To study self-perceptions and outside views (Selbstbild, Fremdbild), a representative household survey was carried out among the local population in all communities of the biosphere park; moreover, in-depth interviews were conducted with regional development experts.
- 13 47 per cent of the 532 inhabitants of the Großes Walsertal who participated in the household survey spontaneously associated the biosphere park with nature conservation, while 52 per cent associated it with development and/or cooperation (in the following, see Rumpolt 2006). This shows that the local population were indeed aware of the fact that a biosphere park represents more than the mere protection of a natural landscape worthy of conservation. However, the number of interviewees familiar with legal aspects of landscape development in biosphere parks was much smaller: only 47 per cent were aware of the zoning concept, while a mere 2 per cent could actually name the three specific zones (core zone [Kernzone], buffer zone [Pflegezone], development zone [Entwicklungszone]). Nevertheless, 84 per cent considered the biosphere park useful, or even very useful.
- 14 More than two thirds of the interviewees were familiar with regional projects launched in the context of the biosphere park (see below for more details). By far the most successful projects in terms of public awareness have been those that aim to promote supply chains for regional products. Nearly 70 per cent of the interviewees perceived benefits as a result of the certification of the Großes Walsertal as a biosphere park; the most important aspects named were a higher profile, revitalised tourism, and trans-communal cooperation on biosphere park projects. This correlates with the fact that an almost identical number of respondents had already seen positive changes over the few years of the park's existence. However, 14 per cent perceived disadvantages resulting from increased regulation since its creation.
- 15 Only one quarter, or one eighth, of the interviewees actually were active participants in biosphere park projects, or related working groups; but 40 per cent could have imagined participating in the future. This shows that the local population were indeed ready and willing to contribute and shoulder responsibility for the future development of their region, which is an important prerequisite to establishing and implementing bottom-up principles of sustainable regional development.
- 16 As regards the future, local interviewees attributed top priority to continuing regional development in the biosphere park sense, followed by nature conservation, "gentle" (or sustainable) tourism and increased cooperation in the valley – bright prospects for the biosphere park as a whole. In general, then, the analysis of self-perception showed that the people of the Großes Walsertal have firmly embraced the biosphere park. The core areas in which the local stakeholders considered the biosphere park to constitute an adequate instrument were nature conservation, conservation of cultural landscapes and regional development through sustainable tourism and cooperative projects in the valley to promote regional supply chains.
- 17 The "view from outside" by experts may provide important insights into the image of biosphere park and of the way it has been implemented and developed (in the following, see Stix 2006). Interviewed on their spontaneous associations concerning the Großes Walsertal Biosphere Park, for example, the experts came up with a generally positive

image primarily related to the biosphere park concept. They also had a positive perception of the biosphere park's image, using positively-connoted descriptions such as "landmark project", "model region" or "a region en route to sustainability". Moreover, it was interesting to find that many experts surmised a distinct difference between positive "outside view" and scepticism dominating the "inside view", an assumption not corroborated by the household survey on self-perception.

- 18 On the other hand, outside experts also noted some potential for improvement, especially of regional marketing efforts. Concerning the implementation process, they identified a need for greater participation and improved relevance of initiated projects. Experts felt it was crucial to ensure that the biosphere park notion should become more firmly embedded in the minds of the local population. Among the advantages of the biosphere park concept over classic nature conservation concepts were participation, adaptability of the concept to regional constellations; combination of protective and utilisation functions; and the bottom-up principle. Beyond this, the experts interviewed assumed the biosphere park to have a trans-regional multiplication effect.
- 19 Generally speaking, the outside analysis also reflected a positive view of the biosphere park concept and its implementation in the Großes Walsertal.

## Regional economic analysis

- 20 Specific project initiatives in the context of biosphere parks have primarily been intended to contribute towards sustainable regional development in keeping with the spirit of the Seville strategy; then there is the challenge of being exemplary regions of ecologically and economically sustainable as well as socio-culturally balanced development (see Austrian Academy of Sciences, ÖAW 2005) geared to endogenous potentials and based on the local population's widest possible participation.
- 21 In recent times, sustainable regional development has come to rely increasingly on a standard range of strategic instruments and concepts such as the promotion of small-scale economic cycles, local networks and sustainable tourism, as well as the support of direct marketing initiatives to strengthen regional supply chains. Regional economic projects related to the Großes Walsertal Biosphere Park were kick-started in these very fields: highquality Bergkäse (mountain cheese) has been produced and marketed under the brand name Walserstolz (Walser Pride) by the valley's four alpine dairies; the Bergholz (Mountain Timber) project has involved small industrial businesses cooperating on ecologically processing local timber; and Partnerbetriebe des Biosphärenparks (Partner Business of the Biosphere Park) is a certification project: sustainably managed tourist accommodation and catering businesses in the biosphere park have been awarded with a quality label.
- 22 A survey of over 80 tourist businesses, some 40 other businesses and 40 alpine farmers in the Großes Walsertal found that it was quite difficult to ascertain immediate business and regional economic effects of the projects under scrutiny. Overriding conditions such as general economic trends, the development of promotional programmes and state policies tend to affect individual and regional businesses as much as developments in neighbouring (competing) economic areas, or divergent strategies by other actors. Moreover, it is virtually impossible to identify the revenue in any given business' total balance generated by specific biosphere park projects: such projects merely constitute part of the business strategy and can only be assessed as part of the bigger picture.

However, it proved quite easy to ascertain the views and experiences of participating individuals, which provided a good general impression of the acceptance, rating and object-orientation of existing projects.

- 23 As regards the regional tourist sector and acceptance of the Partner Business certification project, the following can be stated (Knaus 2006): compared with the neighbouring regions of Bregenzerwald and Montafon, the Großes Walsertal is a very small tourist destination. While this restricts potential development, it also means that priority may be given to expanding sustainable tourism. In a survey of some 150 guests of the Großes Walsertal, it was the valley's natural and cultural landscape and the warm hospitality of its inhabitants that particularly stood out as the crucial endogenous potentials, i.e., as the region's touristic strengths. Among its weaknesses were a lack of diversity in choices, lack of infrastructure and rather low quality standards. In comparison with neighbouring tourist destinations, guests to the Großes Walsertal tended to be somewhat older. The biosphere park was generally viewed positively, both by businesses and visitors participating in the survey. The biosphere park label was actually perceived as a unique selling proposition to distinguish the region over other destinations; it was felt to have potential for future tourist development. The Partner Business project was perceived as an intelligent initiative, enabling participating tourist businesses to increase awareness of the biosphere park philosophy among various target groups. Obtaining the Partner Business certificate was generally perceived to have an image-enhancing effect and to improve quality; however, it was not usually possible to measure actual economic benefits in monetary terms. Moreover, the certificate was only one among many, which means that certain businesses showed little interest in participating. Finally, rather too few visitors actually knew about the Partner Business label.
- 24 A survey of businesses unrelated to the tourist sector found the following perceptions concerning trends in regional economic development as well as successful implementation of projects related to the biosphere park (Thanner 2006): the general view was quite positive even though some of the businesses demonstrated some scepticism concerning the then current economic situation and trends. Essentially, endogenous business potential was perceived in the areas of processing of timber and local agricultural products (alpine dairies in particular). It was in these areas that projects were initiated in the context of the biosphere park (e.g. Walserstolz and Bergholz). Even though direct monetary success could not (yet) be measured, participation in biosphere park projects tended to be viewed positively. Businesses in the valley were encouraged by their participation in park-related projects to increase cooperation in general – in other words, the networking aspect of these projects is highly relevant. They also felt their image benefited from participating in such projects. Businesses that had thus far stood aside did indeed express an interest in participating, even though they generally perceived as weak or even inexistent any overall economic effect on local businesses of the Großes Walsertal since it was proclaimed a biosphere park. They did view positively, however, their enhanced image, improved cooperation among local businesses, and the higher regional self-esteem.
- 25 Alongside the tourist sector and other private-sector businesses, agriculture (especially alpine farming) is an essential regional economic factor and of crucial significance to the development of the biosphere park (in the following, see Waibel 2006). In the context of the fairly irregular and crisis-ridden track-record of alpine farming throughout the alpine arc over the past few decades, the current situation in the Großes Walsertal is



quite stable. Alpine farming is the decisive feature of regional identity of the Großes Walsertal, both historically, economically and socio-culturally and as regards cultural landscapes. Alpine farmers in the Großes Walsertal have been very much aware of their role as caretakers of the cultural landscape, which they also consider a decisive endogenous potential for the future development of the region in general, and of the biosphere park in particular.

- 26 Even though the integration of alpine farming into specific biosphere park projects has so far been limited, interviewees responded positively when questioned about the effects of the biosphere park. Its potentials were considered to be the region's enhanced image and higher profile and potential tourist impact. Hence, specific projects such as the establishment of an "Alpbüs" by the biosphere park management have had a positive echo. Stakeholders generally wished to be more closely involved in biosphere park projects, even though not many specific, innovative ideas and suggestions for implementation have so far been put forward.

## Conclusions: what lessons can be learned from the results of the case studies?

- 27 For a considerable length of time, the Großes Walsertal had to be described as a typically rural, peripheral region with clear signs of stagnation. The "great development trends" of the past few decades, such as dynamic development of (mass) tourism, largely left the Großes Walsertal untouched. This enabled the study area to preserve its cultural identity and its landscape, which in the days of "modernisation at any cost" was considered to be "backward", and rather negatively connoted. Currently, this seeming "weakness" may well be transformed into a strength, a strength that was taken into account even when the biosphere park was created.
- 28 While biosphere reserves are instruments of landscape management based on very specific standards of measurement and environmental protection, they are also subjective social constructs – self-images, outside views – generated by the local population and visitors. By no means are the latter necessarily identical with the former. Experiences in protected areas have shown that the adequate implementation of landscape management instruments benefits from self-images that are essentially consistent and congruent with outside views. Innovative sustainable policies can best be implemented if self-image and outside view do not diverge too greatly, and if the local population's expectations do not clash with implementations of land conservation policies. In this context, the Großes Walsertal biosphere park was found to evoke a high congruence of positive connotations, both among the local population and outsiders. For example, the outside view of general developments in the biosphere park was extremely positive; the biosphere park concept and park-related projects were considered to be a success. For example, experts found that the criteria and tasks of a biosphere park according to the Seville strategy were indeed being implemented in the Großes Walsertal. The majority of the local population also found the biosphere park to be a useful institution; hence, it would seem to be generally accepted. Most locals perceived advantages resulting from establishing the biosphere park, i.e. in tourism, higher profile, improved cooperation among local communities, and improved market opportunities for regional products.



- 29 In economic terms the area of the Großes Walsertal region is small. This entails obvious weaknesses due to the limited supply and demand of regional markets. It is all the more important, then, to strengthen the local suppliers' market position by encouraging cooperation and developing highly visible, typical local products. Given this specific regional economic context, there is no doubt that the most sensible way forward is a regional development strategy geared to the region's endogenous potentials, and guided by principles of socio-cultural, economic and ecological sustainability.
- 30 The majority of the tourist businesses, tradespeople and alpine farmers in the Großes Walsertal were also found to have a positive perception of the biosphere park, primarily due to its outward impact, improved image and potentials for park-related cooperation. But wherever there is agreement, there is scepticism. The survey still found numerous stakeholders – particularly among those who did not participate in ongoing projects, merely observing them "from outside" – who had not yet adopted the biosphere park philosophy and notions of sustainable regional development. They tended to justify their scepticism by a lack of immediate economic benefits, generally perceiving few holistic and long-term effects. A stronger focus on integrational implementation of biosphere park requirements throughout its entire territory – fully involving the local population – therefore remains a crucial policy challenge for the Großes Walsertal Biosphere Park.
- 31 On the whole, the results have shown that the primary significance of a large, multifunctional protected area such as this biosphere park is neither ecological nor economic, but much rather the social and cultural dimension of sustainable development. Biosphere parks not only conserve or create natural and cultural regional features, but also, and most importantly, social and cultural values that are of great significance in landscape management. They therefore help ensure the ongoing existence of fundamental elements that support tourism, the general economy and a high quality of life. Biosphere parks and their large, integrational protected areas can be important location factors for the private sector and the local population, and are a useful part of regional, tourist and location marketing.

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## BIBLIOGRAPHY

ERDMANN K.-H., 2000. – "Naturschutz – quo vadis? Anregungen zu einer Neuausrichtung". *Petermanns Geographische Mitteilungen*, 143, pp. 80-85.

HAMMER TH., MOSE I., SIEGRIST D., WEIXLBAUMER N., 2007. – "The potential for the integration of environmental protection and regional development in large protected areas". In I. Mose (ed.) *Protected Areas and Regional Development in Europe. Towards a New Model for the 21st Century*. Ashgate, London, pp. 233-246.

KNAUS M., 2006. – "Tourismus im Biosphärenpark Großes Walsertal". In M. Coy and N. Weixlbaumer: *Zukünftige Entwicklungsstrategien für den Biosphärenpark Großes Walsertal. Eine regionalwirtschaftliche und perzeptionsgeographische Analyse*. Unpubl final project report. Innsbruck, Wien, pp. 8-18.

- MEYER-ABICH K. M., 1990. – Aufstand für die Natur. Von der Umwelt zur Mitwelt. München.
- ÖAW (Austrian Academy of Sciences) ed., 2005. – Leben in Vielfalt. UNESCO-Biosphärenreservate als Modellregionen für ein Miteinander von Mensch und Natur. Wien.
- PLACHTER H., 1991. – Naturschutz. Stuttgart.
- RUMPOLT P., 2006. – "Das Selbstbild im Biosphärenpark Großes Walsertal". In M. Coy and N. Weixlbaumer: Zukünftige Entwicklungsstrategien für den Biosphärenpark Großes Walsertal. Eine regionalwirtschaftliche und perzeptionsgeographische Analyse. Unpubl final project report. Innsbruck, Wien, pp. 48-60.
- STIX E., 2006. – "Das Fremdbild des Biosphärenparks Großes Walsertal". In M. Coy and N. Weixlbaumer: Zukünftige Entwicklungsstrategien für den Biosphärenpark Großes Walsertal. Eine regionalwirtschaftliche und perzeptionsgeographische Analyse. Unpubl final project report. Innsbruck, Wien, pp. 37-47.
- THANNER Ch., 2006. – "Gewerbebetriebe im Biosphärenpark Großes Walsertal". In M. Coy and N. Weixlbaumer: Zukünftige Entwicklungsstrategien für den Biosphärenpark Großes Walsertal. Eine regionalwirtschaftliche und perzeptionsgeographische Analyse. Unpubl final project report. Innsbruck, Wien, pp. 19-26.
- WAIBEL H., 2006. – "Die Alpwirtschaft im Biosphärenpark Großes Walsertal". In M. Coy and N. Weixlbaumer: Zukünftige Entwicklungsstrategien für den Biosphärenpark Großes Walsertal. Eine regionalwirtschaftliche und perzeptionsgeographische Analyse. Unpubl final project report. Innsbruck, Wien, pp. 27-36.
- WEIXLBAUMER N., 2005. – "'Naturparke' – Sensible Instrumente nachhaltiger Landschaftsentwicklung. Eine Gegenüberstellung der Gebietsschutzpolitik Österreichs und Kanadas". Mitteilungen der Österreichischen Geographischen Gesellschaft 147, pp. 67-100.

## ABSTRACTS

Complex landscape management instruments based on a dynamic, innovative land-conservation paradigm and spatial zoning to provide for graded intensity of protection and human use are being implemented in the newer generation of biosphere reserves and biosphere parks. The multifunctionality of these exemplary landscapes with sustainable development is a great challenge; it also offers considerable potential for conflict. This paper intends to demonstrate the extent to which multifunctionality has been realised in the alpine Großes Walsertal Biosphere Park, and how the local population perceive the quality of their park five years after it was created. Landscape management efforts in the Großes Walsertal were monitored by accompanying regional-economic and perceptual studies, resulting in a discussion of required future actions.

Des instruments complexes de gestion du paysage, fondés sur un paradigme dynamique et innovant de conservation ainsi que sur un zonage de l'espace visant à réguler la protection du territoire et son utilisation par l'homme, ont été mis en œuvre dans la dernière génération de réserves de biosphère et de parcs. La multifonctionnalité de ces paysages exemplaires du développement durable constitue un défi majeur, mais représente également une importante source de conflits. L'objectif de cet article est de démontrer dans quelle mesure la notion de multifonctionnalité a été appliquée à la réserve de biosphère alpine de Grosse Walsertal et d'évaluer comment la population locale perçoit la qualité de son parc, cinq ans après sa création. Les efforts de gestion du paysage dans la réserve de Grosse Walsertal ont été évalués par des

études économiques régionales et par des enquêtes de perception, à l'origine d'un débat sur les actions futures à mettre en place.

## INDEX

**Mots-clés:** changement de paradigme en matière de protection du territoire, développement régional, économie régionale, gestion du paysage, perception, réserve de biosphère

**Keywords:** biosphere reserve, landscape management, paradigm shift in land protection, regional development, regional economics

**Geographical index:** Austria, Grosse Walsertal

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